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ABSTRACT

The necessity of early education is confirmed by a large body of research, particularly that which reveals the emergence of mental test score differences between children of different social classes during the crucial period of early language development, the second year of life. The evidence indicates that verbal comprehension relates highly to intelligence test scores, to reading achievement, and to academic and occupational success, suggesting that education should begin during or before the period of early, rapid language development. However, because environmental stimulation during later years profoundly influences intellectual functioning, education must be a continuing process. In fact, data indicates that IQ scores increase during intensive intellectual stimulation and decrease when such stimulation is terminated. There is, therefore, a need for family-centered programs designed to increase the educational quality of family interaction throughout the period of child development. Parent training programs have been successful in improving parental behavior. Parents should be recognized as the most influential educators of their own children and provided with teaching skills. (MH)

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NEED FOR EARLY AND CONTINUING EDUCATION

The growing evidence that early experience influences later academic achievement has motivated the development of a number of experimental nursery-school programs. More recently, infant-education programs have been designed to prevent the low levels of intellectual functioning that are found in disadvantaged children as early as three years of age. The accumulating data on the short-term and long-term effects of early education programs as well as data from cross-sectional and longitudinal studies of intellectual development prompted this analysis of the need for early and continuing education. Research data on intellectual development and academic achievement also suggested the need for re-evaluation of current implicit answers to the questions, "By whom, where, when, how, and in what characteristics should the child be educated?"

A Comprehensive Definition of Education

A re-evaluation of these basic questions about the process of education may lead to expansion of the current restricted meaning of "education." A comprehensive definition of education includes "the act or process of rearing or bringing up . . ." and "the process of providing with knowledge, skill, competence or usually desirable qualities of behavior and character . . ." (Webster's Third New International Dictionary of the English Language, Unabridged, G. and C. Merriam Company, Springfield, Massachusetts, 1965.) However, both popular and professional discussions of education usually assume a more

restricted meaning, i.e., the activities of professional educators teaching the traditional academic subjects to school-age children in the schools, which is a description of formal or academic education.

An analysis of the more comprehensive definition of education suggests that academic education is only one component of the total education system. In recognition of the current focus on academic education, other components might be labelled pre-academic education for education prior to school entrance, para-academic education for education by extra-academic institutions during the school years, and post-academic education for continuing education after the school years. Recognition of the importance of these extra-academic components of education may be necessary in order to design an education system that would be more successful in promoting the adjustment and competence of disadvantaged social groups.

Need for a Discipline of Ur-education

A possible response to recognition of the importance of early experience and of the need for early and continued education might be the extension of academic education to earlier as well as subsequent ages. An attempt to apply the assumptions and methods of academic education to early education might accompany this temporal extension of academic education. An alternative strategy might be to use research on existing methods of pre- and para-academic education as a basis for the development of early education. The educational needs of young

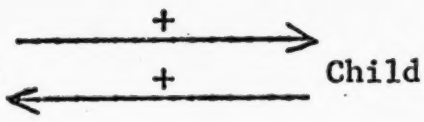
children probably differ greatly from those of children who are ready to participate in academic education. The development of a new discipline of Ur-education, a suggested label for the most primitive--earliest and most basic--education of the child, may be required in order to develop more effective approaches to early education. Although academic education would contribute to this development, the behavioral sciences, particularly the growth sciences, might provide a scientific basis for that discipline. Since parents have had the primary responsibility for early education, studies of parent-child relationships may be the best source of information for the development of Ur-education.

As an example of how research on parent-child relationships might contribute to the development of Ur-education, I will briefly outline a four-stage model for the early education of the child. The model was suggested by the accumulating evidence of the importance of parental loving acceptance as opposed to hostile rejection for the social, emotional, and cognitive development of the child. The four stages that are logically, if not temporally, differentiable suggest possible approaches to improving the early education of the child. The first stage is the development by the parent of a positive attachment to the child.

Stage 1 Parent $\xrightarrow{+}$ Child

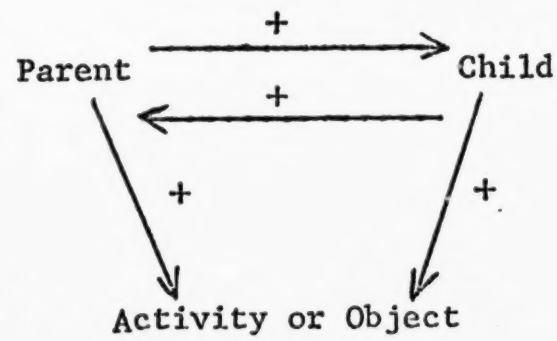
In the second stage, the positive involvement of the parent elicits from the child the development of a positive relationship with the parent.

Stage 2



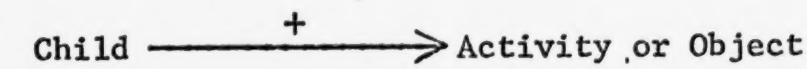
In the third stage, the parent and child together engage in an activity or explore an object. In the context of this experience, through both verbal and non-verbal behavior, the parent educates the child.

Stage 3



The fourth stage suggests that from this early experience with the parent the child has acquired the interests, the motivation, and the skills that allow him to function effectively as an autonomous student.

Stage 4



Achievement of these early developmental stages may be a necessary basis for successful participation in academic education.

Emergence of Differences in Mental Test Scores among Social Groups

The need for early education is suggested by studies that find that schools typically do not increase the low levels of intellectual functioning that disadvantaged children acquire prior to school entrance. Data from a sample of Negro children from the southeastern states revealed a low mean IQ on the Stanford-Binet at school entrance that did not change during the school years, [(Kennedy, Van De Riet and

White (1963), Schaefer (1965), and Kennedy (1969). In contrast to the relatively stable Stanford-Binet scores of that group, Coleman (1966) reports a consistent decline in the verbal ability of Negroes during the school years. When data were examined by regions, large declines were found in the South and Southwest outside metropolitan areas and little or no decline in Northeast, Midwest, and West metropolitan areas. Although these data suggest that different areas support different rates of intellectual growth during the school years, Coleman found that in none of the regions did the differences between whites and Negroes decrease during the school years. These findings suggest a need to prevent the low levels of functioning that develop prior to school entrance as well as to increase the rate of intellectual development during the school years.

Normative data for the Stanford-Binet suggest that differences between social groups in mean intelligence test scores may be established prior to three years of age. Differences among mean IQ scores of children from different occupational groups were as large for children between 2 and 5½ years as they were for subsequent age groups (Terman, 1937). Both Van Alstyne (1929) and Hindley (1965) found substantial relationships between socioeconomic status and mental-test scores at three years of age. Schaefer (1969) found a mean Bayley Infant Mental test IQ of 90 at 21 months that remained at that level through four years of age for a control group of urban Negro male infants from low socioeconomic status families.

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In contrast to these findings, several studies have found no clear evidence of IQ differences between social groups through 18 months of age. Bayley (1965) found little difference in mean mental-test scores by socioeconomic status or ethnic group through 15 months. Hindley (1965) found no meaningful difference by socioeconomic status at 18 months, although he found clear differences between socioeconomic groups at three years. Francis-Williams and Yule (1967) confirmed Bayley's finding of little relationship between socioeconomic status and Bayley Infant Mental Test scores between 1 and 15 months. Schaefer (1969) also found that disadvantaged Negro male infants did not have low Bayley scores at 14 months.

The consistent finding of no relationship between socioeconomic status and IQ scores prior to 15 months and of significant correlations by three years might be related to variations in the functions measured at different ages. Hofstaetter's (1954) factor analysis of Bayley's (1949) intercorrelations of mental-test scores between birth and 18 years revealed three different factors that contributed to mental-test scores at different ages during the first six years of life. Cronbach (1967) questioned whether factor analysis could identify unique factors for specific age periods but did not question the finding that different factors are found for different ages.

Language Development and Intellectual Development

The appearance of differences in mean mental-test scores of different social groups is probably related to changes in the content

of mental tests from sensory-motor items to language items. The Bayley Scales of Infant Mental Development (1969) include few language-skill items prior to 18 months of age and a large number of such items after 24 months. Additional support for this interpretation is given by evidence of rapid language development during the second year of life (McCarthy, 1954).

A number of studies suggest the importance of early language development for the future intellectual development of the child. Bradway (1945) found that, of several components derived from the Stanford-Binet, verbal scores during the early years yielded better predictions of intelligence than non-verbal or memory scores. Bayley (1966) has also reported that a factor of verbal knowledge yields higher predictions of future intelligence than other factors isolated from tests between 2 and 6 years of age.

The effectiveness of early language skills in predicting later intellectual level may be attributed to the high relationships between standard mental tests and verbal comprehension as measured by vocabulary items. Templin (1958) found in her study of language development of children between three and eight years of age that "Only the relationship between intelligence and vocabulary was substantial and was maintained throughout the age span of three to eight." Miner (1957), in a review of studies that correlated vocabulary scores with total scores on the Stanford-Binet and Wechsler-Bellevue, found that vocabulary typically correlates above .80 with total scores.

Correlations of vocabulary with total score are usually as great as the correlations of the two major mental tests with one another. A number of studies have shown substantial relationships between socioeconomic status and language skills, particularly verbal comprehension. Templin (1958) found that most language measures were related to socioeconomic status. A number, including vocabulary of recognition at school ages, were more related to socioeconomic status than were intelligence test scores. In a study by Sitkei and Myers (1969) of 100 four-year-old children, equally divided into low and middle socioeconomic status and white and Negro groups, six interpretable factors were extracted from intercorrelations of 22 tests. Only a factor of verbal comprehension showed significant differences by socioeconomic status and by ethnic groups.

A focus upon early verbal development is also supported by studies of the relationship between vocabulary and academic success. Werner, Simonian, and Smith (1967) reported that the verbal comprehension subtest of the Thurstone Primary Mental Abilities is the best single predictor of reading achievement. Relatively little improvement in prediction was found for a multiple correlation including other measures. Miner (1957) concluded from his review of the literature that vocabulary is the best single predictor of both academic and occupational achievement.

The evidence of the coincidence of the emergence of early language skills with the emergence of mental-test differences between social groups, of the relationship of early language measures with later

intelligence, and of the relationship of verbal skills to socioeconomic status, ethnic group, IQ scores, reading achievement, and academic and occupational success, supports a conclusion that the education of the child should begin prior to or at the beginning of the period of early language development. Since it is reasonable to assume that the development of relationships, interests, motivation, and other characteristics during the first year of life may influence subsequent verbal development, the course that would be most likely to support the child's optimal development would be to assume that age-appropriate education, in the more universal sense, should begin at birth.

Research findings that early sensory-motor and non-verbal skills have little relationship to later intellectual functioning would not support a hypothesis that accelerating the development of those skills will influence later intelligence test scores. These research data also suggest the need for caution in implicitly adopting a post hoc ergo propter hoc interpretation of Piaget's early developmental stages.

Continuing Influence of Environment

An interpretation of the data on early verbal and intellectual development as supporting the need for early education assumes that differences in early experience produce differences in intellectual development. Only a few relevant studies from the extensive literature on the roles of heredity and environment in intellectual development that would support that assumption will be reviewed here. The discussion will focus upon evidence that the rate of intellectual

development is related to the quality of the environment and that changes in the environment are related to changes in the rate of intellectual development. Thus both increases in mental test scores with increases in stimulation and decreases in test scores after termination of educational intervention would support the hypothesis that experience influences intellectual development.

In a pioneering study, Skeels and Dye (1939) found large IQ gains for orphanage infants considered to be seriously retarded who were transferred to a ward of an institution for mentally retarded women, while the contrast group in the orphanage showed decrements in IQ. After the experimental children had achieved higher mental test scores, eleven of the thirteen were placed in adoptive homes. A follow-up at maturity found major differences in the life histories of the two groups (Skeels, 1966). The different histories of the two experimental subjects who were not adopted would support a hypothesis that the continuing support for intellectual growth provided by the adoptive homes, as well as the continued residence of the control group in a limited environment, might be as important as the dramatic effects of the early intervention in producing the differences between groups found at maturity.

The hypothesis that Skeels' and Dye's children would have regressed in mean IQ scores if they had been returned to the orphanage environment is supported by follow-up studies of successful early-education projects.

Gray and Klaus (1969) have reported the Stanford-Binet scores of their early-training-project children after termination of their program of summer school and home visits that had produced highly significant IQ differences between experimental and control-group children. Although the mean IQ scores of their experimental groups increased consistently during the period of intervention, their mean IQ scores had declined approximately 10 points three years after the intervention ended. Gray and Klaus concluded that "the evidence on human performance is overwhelming in indicating that such performance results from the continual interaction of the organism with its environment."

Caldwell and Smith (1968) also reported large IQ gains from participation in a university day-care program that included a heavy focus upon intellectual stimulation. Retesting a year after the children had left the program revealed that "Their functioning level had shown a rather sharp drop from the point at which they functioned just prior to leaving the program, but they still scored slightly higher than a group of matched controls . . ."

Schaefer (1969) has also reported that disadvantaged infants who were provided child-centered home tutoring between 15 and 36 months showed accelerated intellectual growth during the tutoring period, but a decrement in mean Stanford-Binet IQ from 106 to 100 a year after termination of tutoring. Although the tutored-group mean IQ score had dropped, their mean Stanford-Binet IQ was still 10 points above that of the control group.

Studies by Klineberg (1935) and Lee (1957) of Negroes who moved from the South to northern urban centers indicate that IQ scores can increase during the school years. In a study of Southern born Negro children who entered the Philadelphia schools, Lee (1957) found small IQ gains for those who entered the fifth and sixth grades and larger IQ gains for those who entered the first grade. Mean IQ scores apparently continued to increase over a four--to six-year period for groups entering at each grade level. On the sixth-grade mental test, the immigrant group who entered in the first grade approached the mean IQ level of the Philadelphia-born who did not attend kindergarten but lagged behind children who had attended kindergarten. Perhaps attendance at kindergarten was an index of family environment for that sample. Increases in IQ of the children might have been influenced by changes in the extra-academic environment as well as by changes in academic education.

The hypothesis that level of intellectual functioning can change dramatically at later ages with a major change in the person's environment receives strong support from longitudinal data on about 200 adolescent and adult patients who had been certified as feebleminded (Clarke and Clarke, 1959, 1960). These were all severely deprived defectives drawn either from adverse or exceptionally adverse backgrounds. After six years in an improved environment, 33% of the group from exceptionally adverse home environments showed increments of more than 20 IQ points, and a majority showed IQ gains of 10 points or more. IQ increments were greater in those who had suffered the most serious

deprivation. These data would suggest that the stability of IQ of the individual is proportional to the stability of his environment and that significant increases in IQ can be produced by significant increases in the quality of the environment.

Evidence that significant changes in intellectual functioning can occur during the adult years was found by Bayley (1966) in her correlations between Wechsler-Bellevue IQ scores at 16 and those at 36 years. Although the correlation for males was .97, the correlation for females was only .69, a fact which reveals great changes in relative level of functioning for many women in the group. If women's roles in society are less consistently related to their intellectual functioning and provide less consistent opportunity to use intellectual abilities, greater fluctuation in intellectual functioning would result. Apart from an interpretation of the changes, the fact that intelligence-test scores are not consistently stable during maturity would suggest that different environments may have different potentials for maintaining or fostering intellectual functioning of adults.

If the rate of intellectual growth is proportional to the rate of intellectual stimulation, then the amount of change in intellectual functioning that is produced by a move from one environment to another should be proportional to the extent of difference between the two environments. Clarke and Clarke (1959) report larger gains in IQ during maturity for feebleminded adults who had been reared in exceptionally adverse home environments than for those who had been reared in less

adverse environments. They suggest that the amount of recovery can be taken as a minimal estimate of the amount of retardation related to early deprivation. From their studies of changes in IQ during maturity, they conclude that the most adverse social conditions retard intellectual development at least an average of 16 points, and that less severe deprivation can retard mental development by an average of 10 points. Their data on increases in intellectual functioning after leaving adverse home environments suggest that a major change in the environment can produce a major change in intellectual functioning even during maturity.

Coleman's (1966, p. 523) analysis of the apparent effects of Head Start upon test scores also suggests that supplementary or compensatory education programs may have their greatest effects upon the most disadvantaged children. He states, "Controlling for race, region, kindergarten attendance, and various measures of socioeconomic status, it would appear that scores for participants were consistently higher than scores for nonparticipants from the same schools for pupils from the poorest families: Negroes of low SES, particularly those in rural areas. For Negroes from higher socioeconomic-status, and whites, effects of Head Start participation could not be detected from ability test scores in any concrete patterns. Verbal ability--as measured by the tests--was affected to a greater degree than nonverbal ability where effects of Head Start were found." This analysis does not control for possible higher motivation among deprived families that elect to participate in Head Start.

Proponents of early education programs frequently cite Bloom's (1964) conclusion, derived from longitudinal data on intellectual development, that "in terms of intelligence measured at age 17, at least 20% is developed by age 1, 50% by about age 4, 80% by about age 8 and 92% by age 13." From the perspective that the environment may have an impact upon intellectual development at every period of development, the subjects that were used, mostly children reared in their own homes from birth to maturity, do not provide an adequate empirical basis for that conclusion. Perhaps a child's later intelligence is predictable because a child has a stable environment that fosters a stable rate of intellectual growth. If children at four years were randomly assigned to environments that varied in their stimulation of intellectual growth, later intelligence would probably be less predictable. This criticism of Bloom's often-quoted statement does not deny the importance of early development but would question the degree of irreversibility suggested by that statement.

Two contrasting hypotheses--(1) That the environment influences intellectual development at each period of development. (2) That the child's mental level is irreversibly determined during the early years--would suggest different approaches to increasing intellectual development. The first hypothesis would support the development of family-centered programs that would attempt to foster changes in the child's continuing environment, while the second would suggest relatively intensive child-centered interventions during the early years.

Parental Influence upon Mental Development

Studies of parent behavior and child development support a hypothesis that stable patterns of parental behavior influence the development of the child. Schaefer and Bayley (1963) found relatively high stability ($r = .68$) from infancy to adolescence for a dimension of maternal Loving Acceptance vs. Hostile Rejection. Broussard (1969) reported that mothers' negative perception of their infants at one month were significantly related to psychiatric judgments of the children's maladjustment at 4½ years of age.

Case studies and unpublished data suggest that mothers develop different relationships with different children. (A mother who accepted one child and rejected the other said at different times of the rejected child that he was ugly, was not cuddly, and looked like her husband.) Evidence that current stresses and the absence of social support influence maternal hostility, abuse, and neglect of the child suggest that attempts to alleviate the stress and increase the support of mothers at the time the initial mother-child relationship is developed might contribute to the development of maternal attachment.

Significant correlations between early ratings of maternal behavior and child's subsequent adjustment, task-oriented behavior, and mental test scores had been interpreted as revealing the cumulative effect of parent behavior upon child behavior (Schaefer and Bayley, 1963). Many studies suggest that the family environment provided by parents and parental behavior with the child may be a major factor in the early and

continuing education of the child (Roff, 1950). Parents are major suppliers of the materials and experiences that contribute to the child's education and are the gatekeepers who control the child's access to society and society's access to the child.

The significance of parental behavior for intellectual development has been shown by a number of longitudinal and cross-sectional studies. An initial report on the Fels longitudinal study by Baldwin (1949) showed that a cluster of democratic behaviors of parents was related to increases in IQ. A recent analysis of Fels data by Kagan and Freeman (1963) and Kagan (1964) supported that initial finding for both sexes. A partial correlation which removed the relationship of maternal education to maternal behavior tended to reduce the size of the correlations of intelligence with a scale of Justification of Discipline although the correlations still remained significant, particularly for girls. Kagan and Freeman (1963) suggested that Justification of Discipline "not only verbally stimulates the child but also communicates a faith in his conceptual capacity."

Significant correlations were found between maternal behavior during the first three years of life and intellectual development of boys in the Berkeley Growth Study. Maternal ignoring, punitiveness, and perceiving the child as a burden were negatively correlated, and maternal equalitarianism was positively correlated with intellectual development of sons. Correlations of maternal behavior with intellectual development of daughters did not reveal significant relationships (Bayley and Schaefer, 1964). Similarly, maternal behavior showed more long-term

correlation with social, emotional, and task-oriented behavior of sons than of daughters. In an effort to explain differences in correlations for males and females, Bayley and Schaefer (1964) proposed a hypothesis of "a genetic sex difference in resistance to or resilience in recovery from environmental influences."

In contrast to Bayley and Schaefer's finding, Hurley (1965, 1967) reported that measures related to parental acceptance vs. rejection, derived from inventories and interviews with parents of third-grade children, were more highly correlated with intelligence-test scores of girls than of boys with significant correlations for both sexes. Hurley suggested that the discrepant findings for boys and girls in the Berkeley Growth Study might be attributed to instability of findings from small samples.

Hess, Shipman, Brophy, and Bear's (1969) study of urban preschool children provides strong support for a hypothesis that the cognitive environment significantly influences intellectual development of both boys and girls. Highly significant correlations were found between measures of cognitive development and academic achievement and measures of mother-child interaction derived from home visits and observations in an experimental setting. Among the measures correlating most highly with intelligence and academic achievement were ratings from home visits of the mothers' use of resources in the home to foster the child's cognitive development, and maternal support toward the child. Methods of maternal control, maternal language, and maternal teaching style, as well as maternal affection, were significantly correlated

with the child's intellectual development and academic achievement. An early study by Van Alstyne (1929) revealed sizable correlations between parental practices such as reading to the child, contact with adults, and other family environment variables and the child's vocabulary at 3 years even after controlling by partial correlation the effects of maternal intelligence. Milner (1951) found that children from low socioeconomic status homes who earned low scores on a reading readiness test were read to less often, received less affection, were whipped more often, and shared mealtime conversations less often.

Analyses of longitudinal data by Moore (1968) provide further confirmation of the relationship of parent behavior to both intellectual development and the child's achievement in reading. Ratings of the toys, books, and experiences provided for the child, the quality and quantity of verbal stimulation of the child, and the quality of the parent-child relationship, were made from home visits at the child's age of 2½ years. Correlations of these home-environment variables with the child's intelligence-test scores at 3 and 8 years and reading achievement at 8 years were significant, even after partialling out socioeconomic status. The surprising predictive validity of home ratings made at 2½ years for the child's status at 8 years after controlling for SES provides strong confirmation of the hypothesis that parental behavior can influence the child's development and indirect evidence that patterns of parental behavior tend to remain stable through time.

A study of a group of disadvantaged Negro infants involved in a home tutoring program provides further confirmation of the finding of significant

correlations between early maternal behavior and the child's intellectual development (Schaefer, 1969). Maternal behavior rating scales were completed from observations of mother-child interaction during tutoring sessions in the home. Significant correlations were found between a cluster of maternal behaviors that were labelled hostile uninvolvement, including low interest in the child's education, low verbal expressiveness with the child, low involvement with the child and hostile detachment, and the child's hostile maladjustment, poor task-oriented behavior, and low mental-test scores at three years. A set of child-neglect variables including leaving the child without adult care, inadequate day care, irregular meals, inadequate clothing, sickness, accidents and beatings were found to relate to maternal hostile uninvolvement and were also correlated with the child's development.

The different studies summarized above reveal that many children experience a combination of physical, social and emotional, and cultural deprivation. Although different types of deprivation can be differentiated, very large samples would be needed to determine their independent relationships to the child's development. This problem confronts investigators of the effects of malnutrition as well as those who are interested in the effects of social, emotional, and cultural variables. However, different hypotheses about the relative influence of the different types of deprivation might lead to very different programs designed to foster the optimal development of children. That loving involvement of the parent with the child would be related to better physical care and to greater cultural stimulation would appear to have

face validity. In fact, reports by children of intellectual stimulation by the parent are highly correlated with reports of parental love and acceptance (Schaefer, 1965).

Studies of relationships of parent behavior to the child's development provide consistent support for the emphasis on the quality of dyadic relationships in the proposed model for Ur-education. They also support the emphasis upon enriched experiences and parent-child communication about those experiences. The focus of this discussion has been upon intellectual development and academic achievement, with little attention to the social, emotional, and task-oriented behavior of the child. However, parental behaviors that tend to be related to intellectual development also tend to be related to adjustment, positive relationships with others, and task-oriented behaviors (Baldwin, 1949; Becker, 1964; Kagan and Moss, 1962; Schaefer and Bayley, 1963).

Parent-centered Intervention Programs

Recognition of the importance of parent behavior for the development of the child has led to the inclusion of training of parents in two successful preschool education programs (Weikart, 1968; Gray and Klaus, 1968). Preventing cognitive deficits by teaching parents more effective methods of educating their infants has been the major focus of infant-education projects developed by Gordon (1969) and Weikart (1969). Levenstein (1969) has reported success in promoting cognitive growth by stimulating verbal interaction of the mother with the child. Books and toys were conceptualized as "verbal interaction stimulus material." Their use was demonstrated to the mother in the home, after which the mother was

encouraged to continue their use with the child. Mean IQ gains of 17 points were found in the experimental group after an average of 32 visits over a seven-month period during which a total of 28 books and toys were left in the home. If these results can be replicated, this clearly focussed program is an effective and economical method for fostering early cognitive development.

Summary and Implications

The need for early education has been suggested by data on the emergence of differences between mean mental-test scores of different social groups during the period of early verbal development: the second year of life. Evidence that language skills, particularly verbal comprehension, relate highly to intelligence-test scores, to reading achievement, and to educational and occupational achievement was interpreted as suggesting that education should begin during or prior to the period of early, rapid language development.

Research findings that intellectual functioning is influenced by environmental stimulation during the school years, adolescence, and maturity were interpreted as evidence of the need for continued education to promote optional intellectual development. Evidence that mean IQ scores increase during intensive intellectual stimulation and decrease after such stimulation is terminated was cited as supporting family-centered programs designed to increase adequacy of family education throughout the period of child development.

Research showing relationships of parent behavior and family environment to the child's development was reviewed. The apparent success of programs that have attempted to influence patterns of parent behavior with the child was noted.

If the evidence is convincing that intelligence and competence can be increased by early and continuing education, the development of a comprehensive system of education that would extend from birth through maturity is necessary. Academic education should be supplemented by the development of pre-, para-, and post-academic education in the family and community and by the mass media. Parents should be recognized as the most influential educators of their own children. A new discipline of Ur-education--early, basic education--should supplement the current system of academic education. Through research and development more refined models of early education and more effective methods and materials should be developed. However, current knowledge of the effect of early experience upon child development is sufficient to justify teaching skills in Ur-education to all persons--parents, future parents, educators, and child-care workers--who have, or will have, responsibility for the early education of children.

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